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Water Substitution and Reuse

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Abstract
The storage, reconstruction, and use of industrial water are the subject of increased economic growth due to water scarcity and costs. To this end, research and development on this topic is increasing, methods and tools are being developed to assess water conservation and other opportunities, and solutions are being implemented. This book presents experiences and results in water conservation and uses in the textile industry. The garment industry is one of the largest and oldest industries in the world, and the cause of high consumption and pollution. The plant water treatment components, namely food processing, shipping, printing and finishing, contaminate and use water, energy, and chemical equipment. This includes various water use systems, as in many industries, fresh water is used in all systems without exception. It has been known for many years that hard water is not needed for all the processes that take place in the thawing phase of the egg. However, until recently, safety and concern for product quality in the industry have prevented water from being widely used in practice. A four-year research program for industrial water recycling has recently increased water use in the Danish textile industry: polyester modifications since 2001 have implemented water recycling in place, saving more than 40% of the water needed. The combination of the system and the water extraction system is combined to determine the capability, as well as the company's system information, used to obtain the best water, energy and chemical systems. Separation systems such as leather microfilters have not been developed to treat water -based coatings of cotton and polyester. The aviation industry has shown that this technology can improve water supply, as well as a payback period of 1-3 years. However, this refund hinders significant execution.

Keywords: Water Substitution, Reuse, Plant Water, Water Use Systems, Water Extraction System

Introduction

Transporting or recycling water is very important for EU countries due to some reasons such as reduces eutrophication process, increases water supply and reduce operational costs. Water reclamation is the solution to water scarcity and the mentioned problems are some of the driving factors for the WFD Guidelines [1] water nutrition was one of the tools most often misunderstood in the same way as the anthropogenic circuit that is not well received? Environmental water includes wastewater treatment and recycling. UN Agenda 21 states that we will increase the use of non -hazardous waste. Further, the International Bureau of Recycling (BIR) highlighted the world enters a safe year periodically using mobility as an integral part [2]. But moving is nothing new. Without reflection, the cycle becomes a program without making logical decisions. What is useful becomes a threat rather than being used again as a resource. Air conditioning and equipment storage. It also saves energy and protects the environment. The BIR website states that the company has: (a) 1.5 million employees in more than 50 countries, (b) annual turnover of more than the US $ 160 billion, and (c) the company employs more than 600 million tons. Paper industry is a large consumer of water and claims that recycled paper requires 64% less than its original production. Production from recycled paper means a 35% reduction in water pollution and a 74% reduction in air pollution (BIR).
Instead, this process is usually done using water until the container is dry. The 2004 rainy season and the dry season of 2005

highlighted the devastating effects of the drought and the need for a European rain management plan. The effects of rainfall shortages can be exacerbated by poor water use, lack of infrastructure, management requirements, policies and procedures. The economic impact of water shortages has been about 25 billion euros in the last 30 years and about 12 billion euros in 2003. Studies have shown that the worst drought in the United States are more than twice as likely to be flooded [3]. Water pressure is also increasing due to overcrowding, widespread pollution, short-term increases due to tourism and the increase required for irrigation to increase crop yields. At the same time, the WFD has requested a water use survey, which in some areas or plates could lead to a 15-20% depletion reduction, to protect the surface and the surface water level. The need for alternative water sources was highlighted by the 2003 drought that resulted in a 30% increase in agricultural production. This drought is a striking example of a 20% reduction in annual rainfall from 1900 to 2000. About recycling and reuse of water in Europe. Although, this water flows is an important treatment to increase the flow of water in Europe and increase the use of the water is to deal with it immediately. In addition, the return of waste water is interesting in terms of support because wastewater requires waste if it cannot be recovered [4].

There are many cities in Northern Europe that rely on the use of second-hand recycling for 70% of their summer assets. AQUAREC has identified more than 200 water projects in Europe out of 3,300 water recovery projects worldwide. This study covers seven continents: (a) North and (b) Latin America, (c) Europe, (d) Mediterranean and Middle East, (e) Sub-Saharan Africa, (f) Oceania, (g) Japan. Japan has the highest rate of recycling (more than 1,800 jobs), followed by the United States (more than 800), which is the largest producer, with recycled water rates of about 6.5 million m3 / day. Nearly 100 sites have been identified in the Mediterranean and the Middle East, more than 50 in Latin America and 20 in sub-Saharan Africa [5]. In 2004, 700 MCM / year of water was produced in Europe for less than one-fifth of the plan to recycle water. The AQUAREC project develops a system that can estimate the amount of waste that can be used using a disinfectant from a wastewater treatment plant. This system is being used to measure water use capacity in the European Union and compare it to existing estimates. Spain demonstrated the ability to operate at its highest potential, with calculations showing more than 1300 MCM / yr. All countries in the Mediterranean indicate a capacity of 550 MCM / yr (Italy) and 120 MCM / yr (France). The estimated wastewater consumption in Germany is 150 MCM / yr, while Portugal and Greece represent energy consumption of less than 100 MCM / yr (70 MCM / yr). Hochstrat *et al*. [6].

Similar schemes have been proposed. Overall, estimates suggest that 2,455 MCM / yr wastewater could be used for the EU and Euro. This represents 2% of the irrigation water used in European countries, which is more than 50% of the total irrigation water. However, once we consider the seven Mediterranean countries (including Portugal), 2,150 MCM / yr can be managed representing 3.5% of the water used in those countries. It is important that the increase in irrigation and agriculture in other sectors is based on scientific evidence of its impact on the environment as well as public health. Although many studies have been done on water quality and for different purposes, there are currently no guidelines, best practices or standards for water use at EU levels other than the Urban Wastewater Guide [7] which states that “to move the waters. If necessary. More work is needed to compile instructions and descriptions ‘where necessary’. Local interest is important in Spain, agricultural water use in Europe and cites results from [8]. France, Belgium, the United Kingdom and other countries can be used as a basis for developing drinking water guidelines. Fifteen European countries have the highest increase in water demand including Northwest, Central and Southern Europe. The growth rate of long -term resistance from 2000 to 2025 ranges from 1.3 to 14 times the strength and doubles the average increase. This current and inconsistent scheme for alternative water use in Europe emphasizes the need to determine the quality of water use through water quality and best practices [9]. Recycling and replacement can provide water for public water supply. This includes the Northern Hemisphere where the government also faces water problems. Londoners with an average rainfall of 690 mm / year, i.e., 265 m3 / cover per year, indicate the need for access to water [10]. This is less water than what is available in Israel. European water data estimate that public water is 18%, agriculture 30%, industry 14%, and electricity industry 38% [11]. However, if we assume that most power plants (cold water) recover quickly from surface water, then the water supply for public water consumes about 70% of the amount of water needed. Diversion through water use can have a greater impact on access to water resources if we consider 70% of the water produced for public water supply compared to the normal 18%. In southern Europe, about 70% of water is irrigated.

This is a well -equipped and well -maintained tool that reduces the urge to drink water and treats possible side effects. Members of the EUREAU Recycling and Reuse Group have been asked to participate in several European meetings emphasizing the importance of water use in the European Union in response to water shortages and the need to implement conservation. In addition, several members participated in the topic of the Water Supply and Sanitation Technology Platform (WSSTP). WSSTP was established in the European Environmental Action Plan (ETAP) adopted by the European Commission in 2004. This is a European initiative, open to all European water and sanitation stakeholders and a number of employees. Platform participants are developing new documents for all European water companies as well as relevant research plans as well as implementation plans for the short (2010), medium (2020) and long (2030) terms. WSSTP [13] will contribute to:

- Competition for EU water companies (Lisbon Strategy),
- Solving EU water problems, and
- Achieving the Millennium Development Goals (Johannesburg).

About 300 experts from the European Union contributed to five working groups covering water resources management, water for people, water for industry, water for agriculture, and mitigation / auxiliary technology issues. The course incorporates the process of reviewing research papers covering topics raised by the five staff members raised, highlighting the importance of water cycle management, water cycle closure, and alternative water use. The nineteen -page collection deals with the water cycle 25 times and water consumption 11 times, which may indicate that the importance of water circulation is beginning to be understood through the interaction of water with the environment. 2.1. The future of water recycling and reuse in the EU. The following objectives can be used to summarize the future of water use in the EU:

- Quality anthropogenic water cycle education is available online.
- The need for effective water management and its benefits has been identified as a common practice of water resources management and not just wastage.
- Water quality guidelines and best practices are linked to UWWTD.

The EU has developed policies and mechanisms designed to meet the regional needs to capitalize on water movement and also effectively manage opportunities to improve water efficiency. Explain that water use is a vertical device or cross -sectional device that combines various types of safe water treatment and wastewater treatment for public health and environmental protection. A study on how water recycling reduces water competition between agriculture and the public sector / industry by increasing available water resources. How the European Network for Reuse Water and Transfer Knowledge has acted as a catalyst for strengthening European unity.

- New strategies are implemented using the guidance, knowledge and experience of existing projects.
- The benefits of Low Blood Pressure Treatment (SAT) have been recognized as an advanced wastewater treatment system that can play an important role in various circulatory systems as shown in the three US-based liver transplants. The ground and dried water are safe water. The Sabbath [14].
- Relying on the reliability of the project based on environmental, social and economic benefits, using long-term tools, support and cost that provide the right way to measure profit. The European Union WaterStrategyMan [12] research project has issued a guideline "Water quality and safety assessment at market value: guidelines for WFD implementation". This highlights the environmental value of all the waters in England and Wales. The importance of pumping water and pumping water into the soil. This can be extended to protect the soil surface, attract local businesses due to the availability of water, and create a known sports / playground. Better to reduce health costs in the community.
- This project uses the financial resources available to build skills and trust in each community.
- Combine the retrieval of floating water and its use in integrated water cycle management as a water solution. Water companies are paying a budget not as a wastewater treatment plan. These investments in water infrastructure are included in the cost-effective recovery policies promoted by EU countries to ensure that consumers will promote safe food and water in 2010 and beyond.
- Innovative to strengthen team members, international leadership is supported and export opportunities.
- The European Union uses the technology and expertise of the European Union to operate the marine and other industries, and complements export opportunities in developed and developing countries based on trust in our local market.

Perhaps the word we use and perhaps the most important photo we take to illustrate the use of water is the most important word. We must be open, honest and professional in order to build trust. How can we do that when our listeners do not understand the anthropogenic water system leaving only water to use again? China adopted the Integrated Water Cycle Management (IWCM) plan after considering various approaches around the world. They said they also changed the company’s policies and procedures to avoid legal issues, chaos and inciting IWCM to do so. Water routing is an important part of IWCM.

Strategy for Water Savings and Reuse

Measures to conserve resources and improve the environment and industry are often part of efforts to increase production which are more efficient and always involve costs / benefits. It must be something good and attractive to the economy, as well as replacing costs and profits in the short term or the best way to meet production conditions (such as qualifying for holidays). Other factors are competitive advantage and market growth that influence a company's value proposition (for example, meeting customer needs or obtaining environmental evidence). Therefore, the management and conservation of water in wastewater treatment plants, i.e., based on price / value, should be considered as a complete and most important process to ensure the best value / profit to achieve efficiency and treatment water. The elements are listed in chronological order.

- First, the experience is that the best values / values are usually water, energy and chemicals which can be saved through system modifications in the existing infrastructure. Action at this level does not mean a large investment and must be done before the investment is made, including production equipment or water harvesting equipment for recycling or treatment. There is no reason to invest in excess water equipment that can be avoided by easily saving money.
- Second, repairing or upgrading equipment to achieve high water efficiency and manufacturing with high efficiency is often more expensive than investing in water management equipment alone. Therefore, the type of device for this type of application must be considered before using any water management device. The cornerstone of a water management system is the replacement of chemicals that contain other hazardous substances in the environment. It is an ongoing process that affects environmental policy, technological development, the chemical industry and customer interests. However, there is a connection with water management, as the presence of certain chemicals in the water can be a barrier and catalyst for the water cycle.
- As a third factor, the chemical representation must be taken into account before or during the measurement and process of water consumption. There is no reason to fight harmful chemicals for water extraction and reuse if those chemicals can be avoided with beneficial alternatives.
- Fourth, the use of water can be considered. After looking at the options in the first three factors mentioned, water residues and effluents can be important factors in making water efficient in any system. However, alternative aqueous performance can be achieved by using currents flowing between systems. In a water treatment plant, it usually makes sense to use about 30% of the water immediately without any treatment to improve, simply by collecting and using

the water source. Individuals and systems that do not want water quality. Of course, this often carries better value / values than promoting water-based irrigation technology prior to its use, so opportunities like this should be explored before considering investing in water remediation.

- Fifth, the return of water for use for streams that cannot be used immediately can be considered. Instant water recycling and water recycling save energy and water, as well as energy and chemicals. If the energy content of the declared current can be used by the receiver system, the recovery efficiency is 100%, on it there is a value of the water stored in the extract plus the added chemicals. Therefore, immediate use of water or subsequent recovery indicates the ability to store higher altitudes for a single source of energy recovery from thermal changes.
- This is why renewable energy ranks sixth in importance and is often the free water source needed for additional use.
- The seventh most important is wastewater treatment which includes only costs and economic disadvantages rather than those related to environmental performance and compliance. Ways to conserve water and use it in the textile industry describe this area as working on the surface, where the water equipment is still well organized, rather than depleted, where a large amount of water is mixed with the water represents all levels flat. The final choice between water-based energy and water-based and chemical-based options is certainly based on an assessment of technical and economic opportunities in general. This will depend on the level of industry technology which means that the number of options left to be found at different entry levels is on the most important list.

Storing Water to Improve Performance

System optimization is a major problem of increasing resource efficiency as well as reducing generation for better systems. This is an ongoing goal for companies and suppliers of technology and equipment. In the water treatment of eggs, the main problem is the so-called washing machine, that is, the water it consumes per kilogram of egg in each process. Bathroom reduction has become a driver in machine development, for example, the washing machine has changed from a 30: 1 bath in the last 40 years. Up to 6: 1 or more, i.e., modern machines perform the same function in colors or other systems with a maximum of 6 L / kg while machines 30 or 40 years use 30 L / kg. Similarly, the research and development of dyes and coatings for fabric dyes has an ongoing goal to improve color absorption and overall color performance. However, to some extent there is interest in being a chemical supplier with the intention of supplying the chemicals. In the textile industry, this conflict is exacerbated by the development of water treatment systems and knowledge often on the shoulders of developers and chemical suppliers, where this applies to food systems for purification.

Water Savings and Reuse by Process Integration

After considering options for systemic expansion, water use efficiency can be improved by using alternative water. In many bedding designs today, real water is used for almost all jobs. But most jobs don't require good fresh water - let's say you see a shower and washing machine at home: soon after you start showering, the water becomes very dirty, and even the shower is done with dirty water. Water should show that 20% of the dirt from the shower can be well tolerated without adverse effects on the washing result. In bed linen design, many baths and showers are made, and many other processes are also able to absorb less water than clean water. Therefore, there is a lot of interior maintenance with a clean water system that can accommodate this body of water. The photo shows an example of effluent from a detergent / polyester combination in the recipe. It is clear that a lot of clean water and residues are taken from this recipe, and as a result of careful analysis, many "customers" may be in a system that can accept this quality. Flow is not fresh water. The practice of space exploration to use some flowing water as another source of water is a reminder of systemic rules. In system interconnection theory, a water tank is available for recycling, and it is called a source (water). Similarly, in theory all processes that may be able to receive these sources, and processes that can receive a basin of water (water) are called. Now, no water tank will accept only water of the same quality, and can be well explained in the elegant design that will provide for acceptable aquarium water. Therefore, system design is prudent to be involved in determining the resource requirements and its resources and the use of liquid resources and to connect them in such a way as to obtain minimum water - or in practice from a better cost / benefit. The details of system unification are described in simple pictures [15, 16].

Water and Consumption

By exploring options for immediate water use, further improvement in water use efficiency can be achieved by raising water levels using water pump technology. A large amount of water flows in the bleaching process, and many processes require water -free layer. An important requirement to ensure good retention on most sinks is paint removal. Several paint removal methods can be considered: filters, condensate, rain and steam are some of the most sought after and widely tested methods. For example: refill cotton. In a large -scale Danish research program focusing on water remediation and sanitation, four methods of water, energy and chemical remediation were tested: chemical rainwater separation, skin filtration, carbon dispersion and - acting on existing water / moisture barriers. A large number of coatings and carbon products have been tested and tested in laboratory studies. The results indicate that potential solutions can be found in each system. For this reason, high concentrations of rainwater, membranes and carbon products were selected for further experimental testing. All four systems have been thoroughly tested including recovery from vapor / water resistance. This uses empirical methods by which you can select the most appropriate concept, as well as provide the information needed to design a complete plant [17]. Low water baths can be treated with four water systems. However, skin cleansing is more economical and technical than other methods. Through these experiments, suitable membranes for water-water separation were determined under the specified conditions: DK (NF) nanofiltration drainage membrane and Desal SG reverse osmosis (RO) membrane. It has been shown that it is possible and safe to work at high temperatures (around 90 °C), which allows hot water to be returned and reused.

Both NF and RO skins produce colorless warm water, and RO skins also have a high-water content, so this process allows more water and energy to be used [18]. The leather upholstery was built in the Danish house of Martensens Fabric A / S cotton yarn for display in small size, but works perfectly, to cure the shower from a small 5-color machine and then re-permeate for bathing. The plant has been in operation for one year, and clearly demonstrates the technical and economic credentials of the skin test.

Membrane Filtration provides a collection with ahigh-quality fabric. The content of this concentration is about 1-3% of the initial volume of this process, and the concentration will be lost. Experimental studies suggest that attention can be focused on anaerobic digestion [18]. There is complete decolorization with no adverse effects on the GI tract when focusing on about 20% of its total GI tract. Concentrated anaerobic treatment is an environmental improvement compared to the current situation, where waste containing pigments and aerobic water treatment plants is usually left behind, removing only 50% of the color. To record other ways to manage concentration, carbon media has been carefully used. The engine is a F400 version of Chemviron, the lifespan is about 2 hours and the expected capacity is about 4 kilograms of carbon / kg of ink. Complete carbon can be absorbed into a well-recycled system for recycling, which is supported by active carbon producers.

Conclusion

The water efficiency of the fabrication process has gradually increased over the past few decades and is still increasing. The key is to increase the percentage of wine in the filter. For example, in the machine for knitting, the wine size has increased from 30: 1 to 6: 1 or better for the machine currently working. There is still a good chance to improve water efficiency as this process increases, by improving the design process and improving the steering system and the machine further. 50% water can also be stored in many vegetables and factories around the world. Large amounts of money without treatment can be saved by saving money by organizing the process, i.e., using water immediately with a water treatment system that does not require safe water quality. In recent years, there has been great progress in the Danish textile industry, with one polyester yarn dyer gaining about 45% water safety by incorporating water movements into the fabric. The repairs that have been in operation since 2001 have huge economic benefits, little repayments in less than a year and no job problems. Water can also be stored through the development and implementation of chemical recyclables listed around the world to a large extent and of course not described. There is also additional waterproofing and 'loop closure', as well as good waterproofing and skin filtration, which are well documented in large /small size tests in small soaps and polyester coatings. The plant was recognized as qualified in technology and declared wealthy. Specific return of 1 year with 3 years of cotton fly and 3 years of polyester fabric is currently being seen as a high priority to give the company a chance to invest. When the central economic situation due to high water conditions makes it possible, this answer is ready for implementation.

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